UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2009*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2 - 19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2 - 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.　　A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3-25-2009 has been entered.

2.　　Claims **2 - 19** are pending. Claim **2** has been amended. Claim **1** has been cancelled. Claims **17 - 19** are new. Claim **2** is independent. Filed date is 12-31-2003.

Response to Arguments

3.　Applicant's arguments have been fully considered but are moot due to new grounds of rejection in view of **Hoffman et al.** (US Patent No. **6,940,814**) for new claims.

Claim Rejections - 35 USC § 103

4.　　The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.　　Claims **2 - 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crinion et al.** (US Patent No. **6,181,699**) in view of **Rimmer** (US Patent No. **6,681,262**) and further in view of **Denney et al.** (US PGPUB No. **20030061623**) and **Hussain et al.** (US Patent No. **7,161,904**).

Regarding Claim 2, Crinion discloses a switching device comprising:

a) one or more physical layer interfaces for receiving one or more frames from a

  communication network; (Figure 8 (210a, 210b); col 5, ll 66-67; col 6, l 66 - col 7,

  l 6: multiple ports (MACs), reception of data frames; col 5, ll 26-29: Ethernet

  (network) communications of frame data)

wherein each data link layer processor comprises:

c) one or more media access controllers (MACs), wherein each MAC is operatively

  coupled to a physical layer interface; (Figure 8 (210a, 210b): multiple ports

  (MACs); col 5, ll 66-67; col 6, l 66 - col 7, l 3: interface to PHYS, physical layer;

  col 5, ll 26-29: MAC (Ethernet, 802.3, network communications)

  transmission/reception of frame data) and

d) a statistics acquisition module, operatively coupled to the one or more MACs, for

  compiling statistics on each of the plurality of MACs; (Col 5, ll 53-56; col 6, ll 52-

  54; col 7, ll 53-56: network management statistics, transmit statistics to MIB

  engine)

e) a network processor, operatively coupled to the plurality of data link layer

  processors, for routing the one or more frames received from the plurality of data

  link layer processors. (Figure 8; col 2, ll 46-54: circuit data switch, send and

  receive data frames; col 1, ll 7-10; col 5, ll 17-19: routing data frames)

Crinion discloses a plurality of data link layer processors. (Figure 8 (210a, 210b); col

5, ll 26-28; col 8, ll 17-19: data link layer (MAC) processor(s), 802.3 LAN users)

Crinion does not explicitly disclose being coupled to operate in parallel. However,

Rimmer discloses:

b) data link layer processors being coupled to operate in parallel; (Rimmer col 3, ll

    12-15: a shared I/O subsystem coupled to each of the servers; col 3, ll 39-41:

    servers serviced by the shared I/O subsystem; and clustered to provide parallel

    processing; col 8, ll 6-14: each I/O interface of shared I/O subsystem can be

    configured to provide a connection to different types of networks such as an

    Ethernet (MAC address, MAC or data link layer processing) type network)

    It would have been obvious to one of ordinary skill in the art to modify For data

link layer processors being coupled to operate in parallel as taught by Rimmer. One

of ordinary skill in the art would have been motivated to employ the teachings of

Rimmer for a system to provide a shareable, centralized I/O subsystem within an

existing network without disrupting operations. (Rimmer col 3, ll 5-9)

Crinion-Rimmer does not explicitly disclose a MAC preprocessor and a MAC

postprocessor. However, Denney discloses a MAC preprocessor and a MAC

postprocessor. (Denney ¶ 052, ll 1-4: MAC preprocessor, MAC postprocessor)

    It would have been obvious to one of ordinary skill in the art to modify Crinion-

Rimmer for a MAC preprocessor and a MAC postprocessor as taught by Denney.

One of ordinary skill in the art would have been motivated to employ the teachings of

Denney to increase packet throughput capacity while sustaining performance.

(Denney ¶ 017, ll 1-3)

Crinion-Rimmer-Denney does not explicitly disclose a traffic policer and a three color

marker algorithm for discarding frames. However, Hussain discloses including a

traffic policer, the traffic policer adapted to execute an ingress traffic policy (Hussain

col 4, II 42-43: set metering and set rate-limiting policies; col 7, II 36-39: ingress

policing; col 8, II 31-33; col 8, II 38-41: ingress processor (transmitter)) and frame

discard; (Hussain col 7, II 3-5: including rate control ... dropping functions; col 7, II

26-39: packets marked green have a probability of being dropped or discarded; this

scheme may be used for ingress policing of a server), the traffic policer utilizing a

three color marker algorithm to identify frames for discard; (Hussain col 7, II 15-19;

col 10, II 1-3: Three-Color Marker (TCM) algorithm (RFC 2698) and requirements

utilized to discard frames)

It would have been obvious to one of ordinary skill in the art to modify Crinion-

Rimmer-Denney for a traffic policer and a three color marker algorithm for discarding

frames as taught by Hussain. One of ordinary skill in the art would have been

motivated to employ the teachings of Hussain to perform a fair allocation of

bandwidth with network packet based metering. (Hussain col 1, II 33-36; col 1, II 43-

49)

Regarding Claim 3, Crinion discloses the switching device of claim 2, wherein each of

the data link layer processors further comprises one or more flow search engines for

classifying the one or more frames based upon one or more properties associated with

the frames. (Col 1, II 47-49; col 3, II 26-27: assign or change priority level (property) of

data frames, and priority circuit writes priority (property) information)

Regarding Claim 4, Crinion discloses the switching device of claim 3, wherein one or more properties comprise a source port, a VLAN tag state, a VLAN identifier, and a VLAN tag control information (TCI) field. (Col 1, ll 50-52; col 2, ll 1-3: assign VLAN tag; col 3, ll 62-64: VLAN tag, Tag Control Information (TCI))

Regarding Claim 5, Crinion discloses the switching device of claim 3, wherein the one or more flow search engines comprise one or more content addressable memories (CAMs). (Col 1, ll 52-54: search circuit; col 2, ll 46-51; col 2, ll 55-57: circuit: content addressable memory (CAM) and search circuit)

Regarding Claim 6, Crinion discloses the switching device of claim 5, wherein the one or more CAMs associated with each of the plurality of data link layer processors consists of QoS rules pertaining to the associated plurality of physical layer interfaces. (Col 2, ll 57-59; col 3, ll 19-23: content addressable memory stores priority information (QoS); col 1, ll 47-49; col 3, ll 26-27: set priority, determination of quality of service (QoS) for data frame(s))

Regarding Claim 7, Crinion discloses the switching device of claim 2, wherein data link layer processors are media access controller (MAC) processors. (Figure 8 (210a, 210b): ports, MAC (data link layer, layer 2 OSI protocol); col 5, ll 66-67; col 6, l 66 - col 7, l 3:

MAC layer (data link layer) frames information)

Regarding Claim 8, Crinion discloses the switching device of claim 2, wherein the

switching device is selected from the group consisting of: a router, a multi-layer

switching device, and a switch blade. (Col 2, ll 46-53; col 4, ll 45-48: circuit, switch

(switching device))

Regarding Claim 9, Crinion discloses the switching device of claim 2, wherein the

statistics compiled by the statistics acquisition module comprise ingress frame statistics.

(Col 5, ll 53-56; col 6, ll 52-54; col 7, ll 53-56: network management statistics; transmit

statistics to MIB engine, incoming (ingress) packets)

Regarding Claim 10, Crinion discloses the switching device of claim 9, wherein the

ingress frame statistics are compiled as a function of VLAN entry. (Col 9, l 66 - col 10, l

2: data frame received as VLAN tag processing, packets filtered based on VLAN

information; col 5, ll 53-56; col 6, ll 52-54; col 7, ll 53-56: statistics for incoming packets

(data frames), maintain set of MIB counters statistics)

Regarding Claim 11, Crinion discloses the switching device of claim 10, wherein the

ingress frame statistics compiled as a function of VLAN entry comprise: the number of

bytes enqueued at the data link layer processor; the number of frames enqueued at the

data link layer processor; the number of non-unicast bytes enqueued at the data link

layer processor; and the number of non-unicast frames enqueued at the data link layer

processor. (Col 5, ll 53-56; col 6, ll 50-54;col 6, l 9-11; col 7, ll 53-56: MIB counter

statistics, counters (unicast packets, incoming packets, frames sent))

Regarding Claim 12, Crinion discloses the switching device of claim 2, wherein the

statistics compiled by the statistics acquisition module comprise egress frame statistics.

(Figure (210a, 210b); col 5, ll 53-56; col 6, ll 50-54: MIB counters for data frames, data

frames sent (egress, output))

Regarding Claim 13, Crinion discloses the switching device of claim 12, wherein

egress frame statistics are compiled as a function of physical layer interface. (Figure 8

(210a, 210b); col 5, ll 53-56; col 6, ll 48-54: MIB counters for data frames, data frames

sent (egress, output), transmit data using physical layer interface)

Regarding Claim 14, Crinion discloses the switching device of claim 13, wherein

egress frame statistics are further compiled as a function of VLAN entry. (Col 9, l 66 -

col 10, l 2: data frame received as VLAN tag processing, packets filtered based on

VLAN information; col 5, ll 53-56; col 6, ll 50-54: statistics for sent packets (data

frames), maintain set of MIB counters statistics)

Regarding Claim 15, Crinion discloses the switching device of claim 2. Crinion does

not explicitly disclose a MAC preprocessor and an ingress bus transmitter. However,

Denney discloses wherein the MAC preprocessor includes an ingress bus transmitter. (Denney Figure 2 (232b); ¶ 052, ll 7-9: components communicate over bus 232a and bus 232b (bus 232); ¶ 058, ll 9-12: ingress memory controller interacts over bus 232b with I/O arbitrator to receive signals)

It would have been obvious to one of ordinary skill in the art to modify Crinion-Rimmer for a MAC preprocessor and an ingress bus transmitter as taught by Denney. One of ordinary skill in the art would have been motivated to employ the teachings of Denney to increase packet throughput capacity while sustaining performance. (Denney ¶ 017, ll 1-3)

Regarding Claim 16, Crinion discloses the switching device of claim 2. Crinion does not explicitly disclose a MAC postprocessor and an egress bus receiver. However, Denney discloses wherein the MAC postprocessor includes an egress bus receiver. (Denney Figure 2 (232a); ¶ 052, ll 7-9: components communicate over bus 232a and bus 232b (bus 232); ¶ 057, ll 1-4: bus 232a supports the transfer of signals among components including egress postprocessor)

It would have been obvious to one of ordinary skill in the art to modify Crinion-Rimmer for a MAC postprocessor and includes an egress bus receiver as taught by Denney. One of ordinary skill in the art would have been motivated to employ the teachings of Denney to increase packet throughput capacity while sustaining performance. (Denney ¶ 017, ll 1-3)

6.   Claims **17 - 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Crinion-Rimmer-Denney-Hussain and further in view of **Hoffman et al.** (US Patent

No. **6,940,814**).

Regarding Claim 17, Crinion discloses the switching device of claim 2 for inspecting

the received one or more frames. (Col 9, l 66 - col 10, l 2: data frame received as VLAN

tag processing, packets filtered (inspected) based on VLAN information;

Crinion does not explicitly disclose a traffic policer and a parser. However, Hussain

discloses a traffic policer as stated above.

And, Hoffman discloses a parser. (Hoffman col. 7, ll 52-62: parses an incoming packet

to determine various packet characteristics)

It would have been obvious to one of ordinary skill in the art to modify For a parser

as taught by Hoffman.   One of ordinary skill in the art would have been motivated to

employ the teachings of Hoffman for a switch that forwards packets quickly and

efficiently both within a subnet and between networks. (Hoffman col 4, ll 60-62)

Regarding Claim 18, Crinion discloses the switching device of claim 17, wherein the

traffic policer includes a flow search engine for classifying the one or more frames

based upon one or more properties associated with the frames. (Col 1, ll 47-49; col 3, ll

26-27: assign or change priority level (property) of data frames, and priority circuit writes

priority (property) information)

Regarding Claim 19, Crinion discloses the switching device of claim 18, wherein the

flow search engine comprises content addressable memories (CAMs). (Col 1, II 52-54;

col 2, II 55-57; col 3, II 3-4: CAM utilized in data frame processing)

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kyung Hye Shin whose telephone number is (571)272-

3920. The examiner can normally be reached on 9:30 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tonia L. Dollinger can be reached on (571) 272-4170. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kyung Hye Shin

Examiner
Art Unit 2443

April 11, 2009

/Kyung Hye Shin/
Examiner, Art Unit 2443